REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-3 and 6-10 are presently active in this case.

The Applicants are submitting herewith a copy of relevant information about ASUWAN, including a printout of the website listed in the original specification and an English translation thereof (Appendix).

Claims 1-3 and 6-10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fehlberg (U.S. Patent No. 3,731,896) in view of Inoue et al. described on page 2 of the present application. For the reasons discussed below, the Applicants request the withdrawal of the obviousness rejection.

The basic requirements for establishing a *prima facie* case of obviousness as set forth in MPEP 2143 include (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the reference (or references when combined) must teach or suggest all of the claim limitations. The Applicant submits that a *prima facie* case of obviousness has not been established in the present case because no motivation existed to make the proposed combination of references.

Claim 1 of the present application recites a shock absorber comprising a housing having at least one hollow formed therein, formed of a rigid material, and fixed to a bone structural member of vehicles, and a shock-energy absorbing member disposed in the hollow of the housing at least, and formed of a super plastic polymer material exhibiting a tensile

breaking elongation of 200% or more, a yield strength of 20 MPa or more with respect to a predetermined strain and a tensile elastic modulus of 400 MPa or more. The shock-energy absorbing member has a surface at least, where the surface facing a shock input direction and disposed in a manner contacting closely with an inner surface of the housing. The shock-energy absorbing member is pre-compressed in a shock input direction within the housing.

The Applicants argue that an engine mount of the Fehlberg reference is quite a different member in which the purpose of compression is different from that of a shock absorber of the present invention.

As is apparent from the title "ENGINE MOUNT ASSEMBLY", the Fehlberg reference describes "a vibration proof member" which aims to "insulate" or "damp" the vibration of an engine, not "a shock absorber" as recited in the claims of the present application.

In the vibration proof member which is used for an engine mount of the Fehlberg reference, the reason why the vibration proof rubber is compressed and assembled is that the bond strength of rubber to be used is weak in tension (and strong in a compression direction). So, the vibration proof rubber is previously compressed and then assembled in order to not apply tensile forces when the vibration proof rubber vibrates.

In the shock absorber of the present invention, the shock absorber aims to absorb impact forces that are caused by strong large variation from one direction, not to absorb vibration which occurs repeatedly (such as with the vibration proof member).

As described in the art, when a housing is filled with a hard urethane foam, the hard urethane foam is brought into contact with the housing because of volume expansion in foaming. On the contrary, in case of ASUWAN, ASUWAN itself is a simple substance and

has the processed shape, not an elastic body. So, it is difficult for ASUWAN to be assembled in the condition that it is brought into contact with an inner surface of a housing. So, a clearance between the housing and ASUWAN is diminished by compressing the housing, and shock absorbing effect is exhibited effectively since an early stage of deformation. Accordingly, one of skill in the art would not have been motivated to make the proposed combination of references.

As above described, even one of ordinary skill in the art cannot expect that the technique of the Fehlberg reference, in which the purpose of compression is quite different, to be applied to the shock absorber of the present invention. The shock absorber of the present invention does not adopt the technique of the Fehlberg reference in which the purpose of compression is quite different. Therefore, the Applicants submit that the inventive step of the present invention should be accepted.

Furthermore, the Applicants argue the difference between "shock resistance" and "shock energy absorbing characteristic." By submitting the attached documents (Japanese version with excerpts translated into English) in the Appendix hereto from a website discussing ASUWAN, the Applicants again argue that shock resistance, which is explained in the attached documents, and the "shock energy absorbing" characteristics of the present invention are different characteristics.

The "shock resistance" of ASUWAN is described in the attached document. The "shock resistance" applies to a product having an excellent result evaluated by Izod impact test or the like, and it shows numerical value of hardness, namely, "how hard to be cracked" against impact. Generally, a product having viscosity (having high tensile elongation percentage) has a high shock resistance.

The "shock energy absorbing" characteristic were discovered by the present inventors through research. For the "shock energy absorbing" characteristic, the relationship between stress and variation is important. It is desirable to have the materiality that enables variation for a long time without buckling, while maintaining high stress. It is unsatisfactory that only one of either stress or variation (elongation) is excellent, and ASUWAN has both properties (stress and variation). However, the person who developed ASUWAN did not appreciate or notice the fact that ASUWAN has both properties, and present inventors discovered such new knowledge.

As apparent from the above discussion, a feature having excellent "shock resistance" does not necessarily have excellent "shock energy absorbing" characteristics (see the attached document). There is the case in which the one having low stress at the time of variation (which is restricted by tensile elastic modulus or tensile breaking elongation in the present invention) consequently has low shock energy absorbing ability, although the shock resistance is high.

"Shock resistance" and "shock energy absorbing" characteristics are different parameters from each other, and the evaluation method is different. So, even if there is the description that the shock resistance is excellent, this cannot be immediately related to the fact that the shock energy absorbing characteristic is excellent.

The Applicants, therefore, respectfully submit that the rejection is based on the improper application of hindsight considerations. It is well settled that it is impermissible simply to engage in hindsight reconstruction of the claimed invention, using Applicants' structure as a template and selecting elements from the references to fill in the gaps. *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991). Recognizing, after the fact, that

a modification of the prior art would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. *In re Warner*, 397 F.2d 1011, 154 USPQ 173 (CCPA 1967).

Claims 2, 3, and 6-10 are considered allowable for the reasons advanced for Claim 1 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 1.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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APPENDIX

プラスチック加工【斎藤樹脂工業】Plastic　Enpla：素材特性一覧・樹脂材料特性表(1)

別紙

樹脂材料特性表

表の記載の数値は、A.S.T.M試験法による結果の平均値を示します。
試験条件と異なった条件で使用する場合には、設計資料として使用しないでください。
平均値ですので、原料メーカーの発表する数値と異なる場合があります。
また最低保証値を示すものではありません。

特質	A.S.T.M 試験法	塩化ビニール(硬質) PVC	ポリエチレン UHMV	ポリエチレン 高密度	ポリプロピレン PP	ABS ABS	ナイロン キャストNA	ナイロン ナイロン6
比重	D 792	1.3 − 1.45	0.94	0.95	0.91	1.02 − 1.06	1.15	1.12 − 1.14
比容積 cm^3/kg	D 792	741 − 690	1063	1052	1100	980 − 943	871 − 853	896 − 874
屈折率 nd	D 542	1.52 − 1.55	—	1.54	1.49	—	—	—
引張強さ kg/cm^2	D 638	350 − 630	(破断) 440 − 470	250	330	280 − 490	820 − 900	630
伸び %	D 638	2 − 40	450	700	>500	20	30 − 43	290
引張弾性率 kg/cm^2	D 638	25 − 42	5	5	7	16 − 27	33	28
圧縮強さ kg/cm^2	D 695	560 − 910	—	200 − 300	620 − 690	370 − 720	1100	840
曲げ強さ kg/cm^2	D 790	00 − 1120	270	—	420 − 560	420 − 960	1160	970
衝撃強さ kg-cm/cm アイゾット試験 23°C 1/2in × 1/2inノッチ付き -40°C	D 256	2 − 109	破壊せず	20	3.0	15.−54 3 − 22	6 − 9.7	13.6
硬度 ロックウェル	D 785	65 − 85 (ショアーD)	64 − 67 (ショアーD)	65 (ショアーD)	100 (ショアーD)	R75 − 115	R113 − 120	R107 − 114
熱伝導度 $10^{-4}cal/sec/cm^2/°C/cm$	C 177	3 − 7	—	10 − 12	3.3	4.5 − 8.0	6	5.8
比熱 cal/°C/g	—	0.2 − 0.28	0.55	0.55	0.46	0.3 − 0.4	0.25	0.46
熱膨張率 $10^{-5}/°C$	D 696	5 − 19	20	11 − 13	11	6 − 13	9	7
耐熱連続使用温度 °C	JISK7201	69 − 79	—	—	125 − 144	60 − 93	100 − 139	100 − 139

〔ポリエチレンとナイロンの比較〕

ポリエチレン（ＵＨＭＶ、高密度）の衝撃強さは高い数値（破壊せず、２０）を示しているが、衝撃エネルギ吸収には伸びと引張弾性率（or圧縮強さ）の両方が必要である。ポリエチレンは、伸びが高い数値であるものの、引張弾性率が他の樹脂材料と比較して低いため、必ずしも衝撃エネルギ吸収特性が高い樹脂材料であるとはいえない。

また、ナイロンをみても解るように、衝撃強さがポリエチレンよりも劣るにもかかわらず、引張弾性率においてはポリエチレンよりも高い数値となっており、これらの比較結果からも一概に「衝撃強さが大きい＝衝撃エネルギ吸収特性が高い」とはいえないことは明らかである。

なお、例えばナイロン６は、その引張弾性率をＭＰａに換算すると３ＭＰａ程度であり、本願の要求する４００ＭＰａ以上には全く該当しない材料であることはいうまでもない。

http://www.saitojushi.co.jp/p0510.html

Plastic Processing [Saito Resin Industries] Plastic Enpla: Material Property List /Resin Material Property Table (1)

Resin Material Property Table

The value described in the Table shows an average value of the result due to A.S.T.M. experimental method

Property	Polyethylene		Nylon	
	UHMV	High density	Cast NA	Nylon 6
Elongation (%)	450	700	30-43	290
Elastic Tensile Modulus (kg/cm^2)	5	5	33	28
Shock Resistance kg-cm/cm Izod Test 23 ℃ 1/2in × 1/2in with notch -40 ℃	without breaking	20	6-9.7	13.6

(Comparison between Polyethylene and Nylon)

The shock resistance of polyethylene (UHMV, high density) shows high value (without breaking, 20), but both of elongation and tensile elastic modulus (or compression strength) are required for absorbing shock energy. Although polyethylene shows high elongation value, the tensile elastic modulus is low as compared with other resin materials so that the polyethylene is not always a resin material having excellent shock energy absorbing characteristic.

As seen from nylon, although the shock resistance is worse than that of polyethylene, the tensile elastic modulus shows higher value than that of polyethylene. As apparent from the result of comparison, one cannot generally say that "large shock resistance is equal to excellent shock energy absorbing characteristic".

Furthermore, for example, the tensile elastic modulus of nylon 6 is approximately 3MPa if you convert it. So, it is unnecessary to say that nylon 6 is not equivalent to the material having 400MPa or more, which is required for the present invention.